

REMARKS

This amendment is responsive to the Office Action issued on January 3, 2006 in the above-referenced application. There are twenty-five claims pending in the current application, including independent Claims 1 and 23. Claims 1-22 stand rejected as indefinite for failing to indicate steps that are specifically directed to x-ray crystallography sample handling. Claim 13 also stands rejected as indefinite for inconsistent use of nomenclature for the injector. Claim 21 also stands rejected as indefinite for ambiguity in the term "axially." Claims 1-5, and 9-25 stand rejected as obvious over David et al. (US 2002/0189529), in view of Official Notice regarding closing the ends of the capillaries.

Claims 6 and 24 stand rejected as obvious over David in view of Kimel (US 6,551,464). Claims 7-8 and 25 stand rejected as obvious over David in view of Weigl et al. (US 2002/0025279). Claims 11-12 and 22 stand rejected as obvious over David in view of McDevitt et al. (US 2002/0160363). Claims 16-19 stand rejected as obvious over David in view of Corbett et al. (US 5,270,183). Applicants thank the Examiner for a very thorough review of the present application.

Rejections Under 35 U.S.C. Sec. 112

Regarding the indefiniteness rejections of the Claims, Claim 1 is herein amended to recite "introducing plural fluid segments into the capillary tube, wherein the plural fluid segments comprise reagents for protein crystallography," which is believed to address the Examiner's first concern regarding indefiniteness of Claims 1-22. Claim 13 is also amended to change all usage of "ejector" to "injector" for consistency in that claim. Finally, Claim 21 is amended to delete the word "axially." These amendments are believed to resolve and overcome the rejections based on 35 U.S.C. § 112. Applicants thank Examiner Levkovich for his assistance in clarifying these claims.

David et al.

The primary reference that forms the basis for all of the substantive rejections of the Claims is David et al. (which has now issued as U.S. Patent No. 6,719,840). Without addressing the substance of the rejection, it is noted that David et al. has an earliest priority date of June 8, 2001, and published on December 19, 2002. The present application has an earliest priority date of October 30, 2002, prior to the publication date of David et al.

It is further noted that David et al. issued with 36 Claims, all of which are directed to "A method for determining crystallization conditions for a protein," whereas the claims of the present application are directed to "A method of preparing and handling" protein samples (claims 1022), or a reagent sample (claims 23-25). Therefore, David et al. clearly does not claim the same subject matter as the present application.

Enclosed with this amendment is a Declaration of Inventors Under 37 C.F.R. § 1.131, with an attached section of a "Research Plan," that is dated in the footer "Ref. 05/01" (May, 2001). This Research Plan was used to draft the present application, as will be appreciated for example by comparing Figure D.1. on page 131 of the Research Plan with Figure 6 in the present application. The Inventors' Declaration establishes that this version of the Research Plan was prepared at least as early as May, 2001, which is before the publication date of David et al.

The Research Plan discloses the method of preparing and handling protein samples or reagent samples claimed in the present application. For example, Claim 1 of the present application (as amended herein) recites:

1. A method of preparing and handling protein samples for x-ray crystallography studies of protein crystals in the samples, comprising:
 - providing a capillary tube having a sidewall and open ends;
 - introducing plural fluid segments into the capillary tube, wherein the plural fluid segments comprise reagents for protein crystallography;
 - closing the ends of the capillary tube to seal the tube; and

viewing and evaluating the fluid segments while they are in the sealed tube.

This method is disclosed throughout the Research Plan. The following specific citations to particular paragraphs in the Research Plan are intended to assist the Examiner, and are not intended to imply any limitation to the claims.

Page 131, section D.3. describes the filling of capillaries, using piezo-dispensers, and specifically describes a "tape and reel" approach utilizing a continuous belt of capillary tubes. The paragraph on page 131 headed "Capillary Sealing" discloses sealing the capillaries after filling, using any of a variety of methods including "thermal fusion, ultrasonic welding or polymer pugs, among others." Page 127 of the Research Plan, in the paragraph starting in the middle of the page states, "We solved this problem by dividing the dispensed protein volume into several bursts of ~400 droplets and literally firing the droplets and sucking the fluid into the capillary with the internal piezoelectric disc in the mixing head." Therefore, the Research Plan discloses introducing plural fluid segments into the capillary tube. On page 132 of the Research Plan, the paragraphs titled "Cryofreezing/Storage," and "X-ray Diffraction Interface" indicate the fluid segments are viewed and evaluated in the tube.

Because the invention disclosed in the present application was made by the inventors prior to the publication of David et al. (or anybody else), and the claims of the present application are directed to subject matter different from the subject matter claimed by David et al., the applicants have established prior inventorship under 37 C.F.R. § 1.131, and David et al. is believed not to be prior art to the present application.

As noted above, the Research Plan revision date is May, 2001, and a provisional patent application was filed on October 30, 2002. It will be appreciated that the Research Plan was prepared as part of an effort to obtain funding for further developing this technology, and that the funding process for such research can be relatively lengthy. The invention disclosure was submitted to the Technology Transfer Office at the University of Washington, which processed

and evaluated the disclosure, before sending the disclosure to an outside patent attorney for preparation and filing.

In view of the nature of the research, and the administrative hurdles required in an academic institution to proceed with a patent application, it is submitted that there was no undue delay in filing the patent application, and the inventors proceeded with due diligence.

Other Amendments

Claim 2 is cancelled and Claim 3 is slightly amended, to improve the clarity of the claims. Minor typographical corrections to the paragraph beginning at line 4, on page 6, are also submitted for consideration by the Examiner.

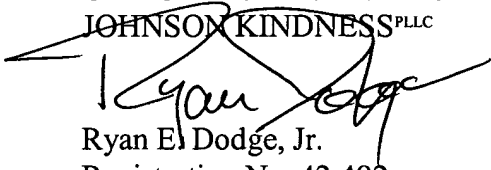
CONCLUSION

The Examiner's comments regarding the clarity of the claims have been considered, and addressed in clarifying amendments to the claims. A declaration under 37 C.F.R. § 1.131 is also submitted, swearing behind David et al., which is cited as the primary reference to all of the claims. Entry of the amendments and a withdrawal of the rejections is respectfully requested.

The Examiner is encouraged to call the undersigned directly if there are any questions or issues that may be productively dealt with over the phone.

Respectfully submitted,


CHRISTENSEN O'CONNOR
JOHNSON KINDNESS^{PLLC}


Ryan E. Dodge, Jr.
Registration No. 42,492
Direct Dial No. 206.695.1724

I hereby certify that this correspondence is being deposited with the U.S. Postal Service in a sealed envelope as first class mail with postage thereon fully prepaid and addressed to **Mail Stop Amendment**, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the below date.

Date:

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LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS^{PLLC}
1420 Fifth Avenue, Suite 2800
Seattle, Washington 98101
206.682.8100